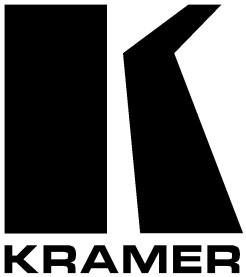
Kramer Electronics, Ltd.



USER MANUAL

Models:

VP-200XLT, ***XGA Line Amp / CAT5 Transmitter***

VP-200XLT(HD), ***XGA Line Amp / CAT5 Transmitter***

VP-300T, ***1:2 XGA DA/CAT5 Transmitter***

VP-5T, ***1:4 VGA/UXGA Distributor/CAT5 Transmitter***

VP-5T(HD), ***1:4 VGA/UXGA Distributor/CAT5 Transmitter***

VP-5R, ***CAT5 Receiver / 1:5 VGA/UXGA Distributor***

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer: **VP-200XLT, VP-200XLT(HD)** *XGA Line Amp / CAT5 Transmitter*, **VP-300T** *1:2 XGA DA/ CAT5 Transmitter*, **VP-5T**, **VP-5T(HD)** *1:4 VGA/UXGA Distributor / CAT5 Transmitter*, and/or **VP-5R** *CAT5 Receiver / 1:5 VGA/UXGA Distributor*, which are ideal for:

- Presentation and multimedia applications
- Long range graphics distribution for schools, hospitals, security, and stores

The package includes this user manual[2], and one or more of the following:

- **VP-200XLT/(HD)**[3], and/or **VP-300T**[3], and/or **VP-5T/(HD)**[4], and/or **VP-5R**[4]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[5]

2.1 Quick Start

The quick start charts summarize the basic setup and operation steps of the **VP-200XLT**, the **VP-300T** and the **VP-5T/VP-5R**.

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

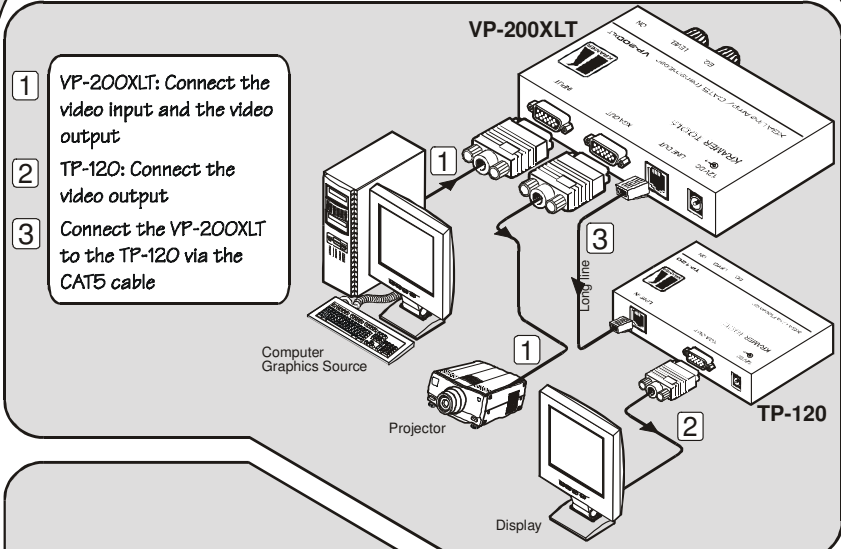
3 With a power adapter

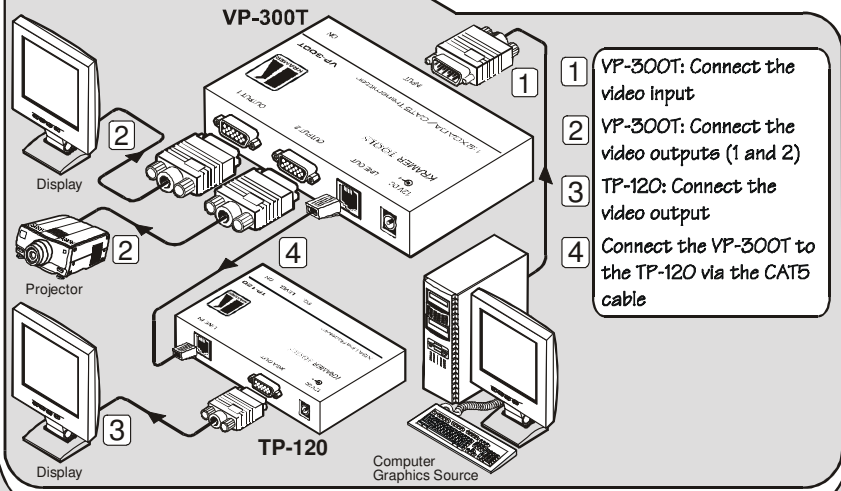
4 With a power cord

5 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

Step 1: Connect the Machines

Quick Start: VP-200XLT VP-300T





Step 2: Connect the power

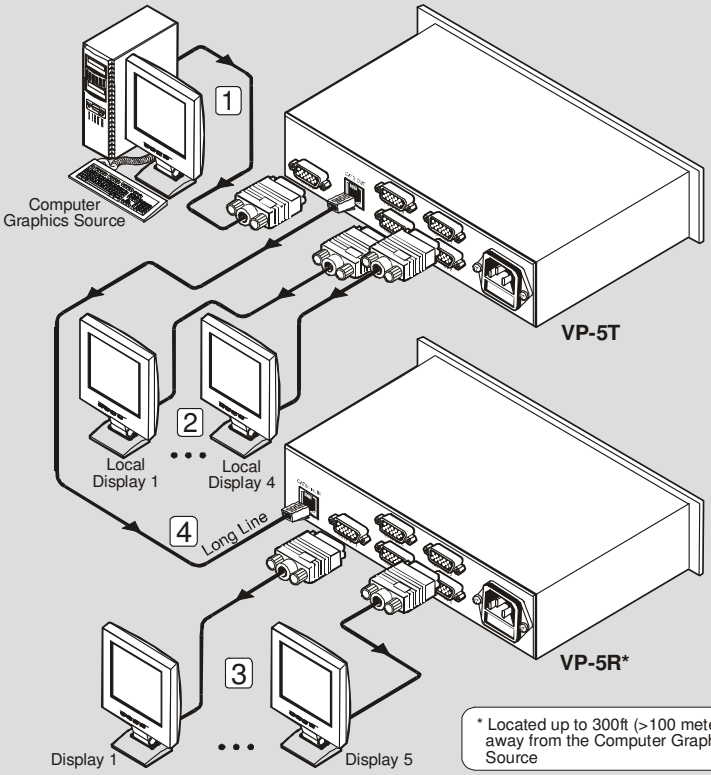
If required:

- Adjust the EQ. and LEVEL
- Set the Polarity switches

Step 1: Connect the Machines

Quick Start: VP-5T VP-5R

1. VP-5T: Connect the video input
2. VP-5T: Connect up to 4 video outputs
3. VP-5R: Connect up to 5 video outputs
4. Connect the VP-5T to the VP-5R via the CAT5 cable



* Located up to 300ft (>100 meters) away from the Computer Graphics Source

Step 2: Connect the power

If required:

FOR THE TP-5T:

- Adjust the EQ. and LEVEL
- Set the ID Bit Control switches
- Set the Polarity switches

FOR THE TP-5R:

- Adjust the input EQ. and LEVEL
- Adjust the output EQ.
- Set the Polarity switches

3 Overview

This user manual describes the following products:

- Kramer TOOLS **VP-200XLT** *XGA Line Amp / CAT5 Transmitter*, which accepts one computer graphics input and distributes the signal to its high-density 15 pin "D" connector output, as well as transmitting it over UTP cabling (CAT5 or similar) to its appropriate receiver, see section 4
- Kramer TOOLS **VP-300T** *1:2 XGA DA/ CAT5 Transmitter*, which is a distributor for computer graphics signals, accepting one input and distributing the signal to its identical 2 outputs, as well as transmitting it over CAT5 UTP cable to its appropriate receiver, see section 5
- Kramer **VP-5T/VP-5T(HD)** *1:4 VGA/UXGA Distributor / CAT5 Transmitter*, which is a distributor for computer graphics signals, accepting one input, and distributing the signal to its identical 4 outputs, as well as transmitting it over CAT5 UTP cable to its appropriate receiver, see section 6
- Kramer **VP-5R** *CAT5 Receiver / 1:5 VGA/UXGA Distributor*, which is a distributor for computer graphics signals, receiving the computer graphics signal via CAT5 UTP cable, and distributing the signal to 5 identical HD15 outputs, see section 7

This section describes:

- The power connect feature, see section 3.1
- Using shielded twisted pair (STP) / unshielded twisted pair (UTP), see section 3.2
- Recommendations for achieving the best performance, see section 3.3

3.1 About the Power Connect Feature

The Power Connect feature lets you power a transmitter / receiver system by connecting just one power adapter— to either the transmitter or the receiver. The other unit is fed via the cable connecting between the transmitter/receiver. The Power Connect feature applies as long as the cable can carry power. The distance does not exceed 50 meters on standard CAT5 cable, for longer distances, heavy gauge cable should be used[1].

For a CAT5 cable exceeding a distance of 50 meters, separate power supplies should be connected to the transmitter and to the receiver simultaneously.

1 CAT5 cable is still suitable for the video/audio transmission, but not for feeding the power at these distances

3.2 Shielded Twisted Pair (STP) / Unshielded Twisted Pair (UTP)

The decision whether to use shielded twisted pair (STP) cable or unshielded twisted pair (UTP) cable depends on the nature of the application.

It is recommended that in applications with high interference, shielded twisted pair (STP) cable is used. However, the shield itself does create a capacitance that degrades the frequency response of the machines. For shorter distances, of 50m or so, shielded twisted pair (STP) cable is preferred because it provides protection from interference (degradation is not apparent).

For long range applications, unshielded twisted pair (UTP) cable is preferred. However, the unshielded twisted pair (UTP) cable should be installed far away from electric cables, motors and so on, which are prone to create electrical interference.

3.3 Recommendations for Achieving the Best Performance

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise-levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances and position your Kramer machines away from moisture, excessive sunlight and dust

Caution – No operator-serviceable parts inside unit.

Warning – Use only the Kramer Electronics input power wall adapter that is provided with this unit[1].

Warning – Disconnect power and unplug unit from wall before installing or removing device or servicing unit.

1 For example: model number AD2512C, part number 2535-000251

4 Your VP-200XLT/VP-200XLT(HD)[1] XGA Line Amp / CAT5 Transmitter

The **VP-200XLT** is a high performance XGA line amp / CAT5 transmitter that accepts one computer graphics (XGA[2]) input, provides necessary buffering and isolation, and distributes the signal to its high-density 15 pin "D" connector output, as well as transmitting it over UTP CAT5 cable to its appropriate receiver. In particular, the **VP-200XLT** has:

- A transmission range of more than 300 ft. (more than 100 meters) over UTP cabling
- Video bandwidth exceeding 400MHz, ensuring transparency even when operating at the highest resolutions
- Output level control, and cable equalization, using two rotary controls on the side panel of the machine

Figure 1 and Table 1 define the **VP-200XLT**:

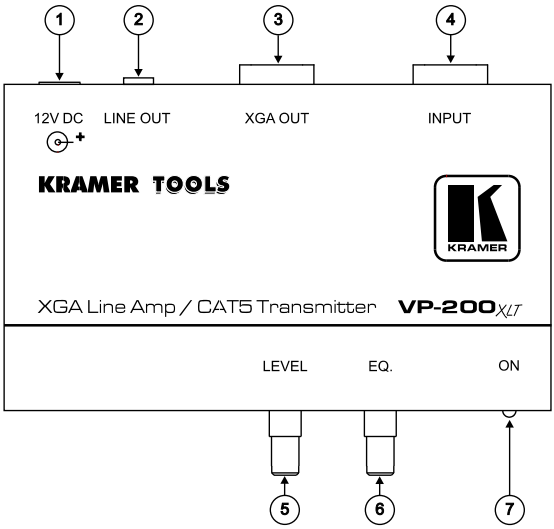


Figure 1: VP-200XLT XGA Line Amp / CAT5 Transmitter

1 The VP-200XLT(HD) (identified by a sticker on its underside) is similar in appearance to the VP-200XLT. However, the VP-200XLT(HD) can also receive HD signals (high definition resolutions: 480p, 576p, 720p, 1080i and 1080p)

2 The terminology XGA is used throughout this manual, where this implies any RGBHV signal on an HD15 connector having a resolution from VGA up to XGA

Table 1: VP-200XLT XGA Line Amp / CAT5 Transmitter Features

#	Feature	Function
1	*12V DC*	+12V DC connector for powering the unit
2	*LINE OUT* RJ-45 Connector	Connects to[1] the LINE IN RJ-45 connector on the **TP-120** *XGA Line Receiver*[2] or the **VP-5R** *CAT5 Receiver / 1:5 VGA/UXGA Distributor*
3	*XGA OUT* HD15F Connector	Connect to the XGA acceptor
4	*INPUT* HD15F Connector	Connect to the XGA source
5	*LEVEL* Control knob	Rotate to adjust the output signal level
6	*EQ.* Control knob	Rotate to adjust the video EQ. (equalization) compensation
7	*ON* LED	Illuminates when receiving power

1 Using a UTP CAT5 cable with RJ-45 connectors at both ends (the PINOUT is defined in Table 8 and Figure 11)

2 Refer to the separate user manual: PT-110, PT-120, TP-120, WP-110, which can be downloaded from the Internet at this URL: http://www.kramerelectronics.com

5 Your VP-300T 1:2 XGA DA/ CAT5 Transmitter

This section describes the topside (see section 5.1), and the underside (see section 5.2) of the **VP-300T** *1:2 XGA DA/ CAT5 Transmitter*.

5.1 Your VP-300T 1:2 XGA DA/ CAT5 Transmitter (Topside)

The **VP-300T** is a high performance distributor for computer graphics signals, accepting one input, providing necessary buffering and isolation, and distributing the signal to its identical 2 outputs, as well as transmitting it over UTP CAT5 cable to its appropriate receiver. In particular, the **VP-300T** has a:

- Video bandwidth exceeding 430MHz, ensuring transparency even when operating at the highest resolutions
- Transmission range of more than 300 ft. (more than 100 meters) over UTP cabling
- Switch for ID Bit control
- Is 12VDC fed

Figure 2 and Table 2 define the **VP-300T**:

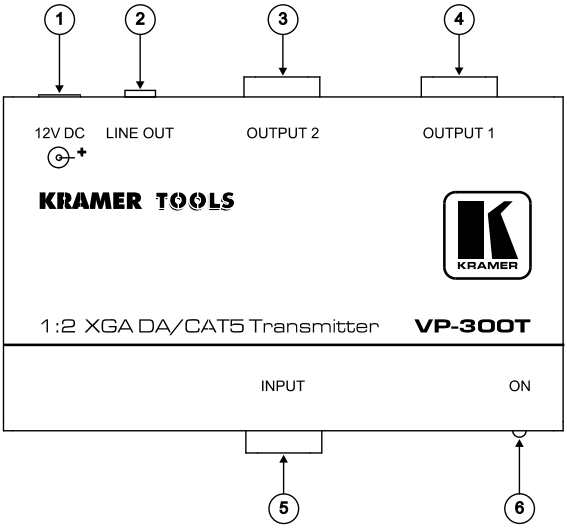


Figure 2: VP-300T 1:2 XGA DA/ CAT5 Transmitter (Topside)

Table 2: VP-300T 1:2 XGA DA/ CAT5 Transmitter (Topside) Features

#	Feature	Function
1	*12V DC*	+12V DC connector for powering the unit
2	*LINE OUT* RJ-45 Connector	Connects to[1] the LINE IN RJ-45 connector on the **TP-120** *XGA Line Receiver*[2] or the **VP-5R** *CAT5 Receiver / 1:5 VGA/UXGA Distributor*
3	*OUTPUT* 2 HD15F Connector	Connect to the XGA acceptor 2
4	*OUTPUT* 1 HD15F Connector	Connect to the XGA acceptor 1
5	XGA *INPUT* HD15F Connector	Connect to the XGA source
6	*ON* LED	Illuminates when receiving power

5.2 Your VP-300T 1:2 XGA DA/ CAT5 Transmitter (Underside)

Figure 3 and Table 3 define the underside of the **VP-300T** *1:2 XGA DA/ CAT5 Transmitter*:

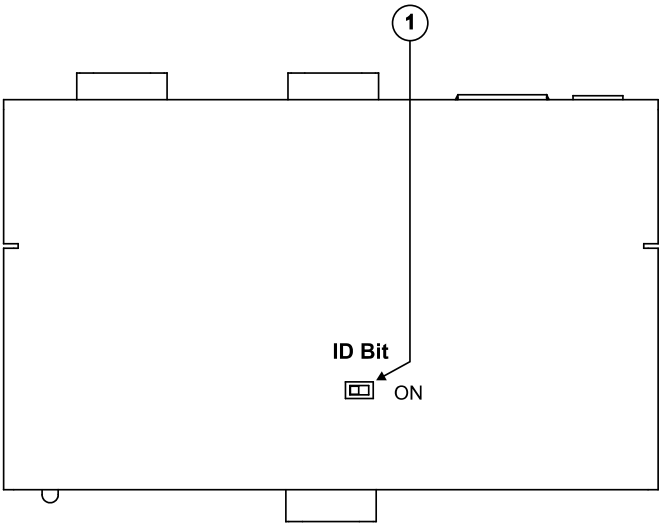


Figure 3: VP-300T 1:2 XGA DA/ CAT5 Transmitter (Underside)

Table 3: VP-300T 1:2 XGA DA/ CAT5 Transmitter (Underside) Features

#	Feature	Function
1	*ID Bit* Switch	Slide to the right to set to ON[3]; to the left to set to OFF

1 Using a UTP CAT5 cable with RJ-45 connectors at both ends (the PINOUT is defined in Table 8 and Figure 11)

2 Refer to the separate user manual: PT-110, PT-120, TP-120, WP-110, which can be downloaded from the Internet at this URL: http://www.kramerelectronics.com

3 The default. Enabling the notebook or laptop to output a VGA signal to an external VGA monitor

6 Your VP-5T/VP-5T(HD[1]) 1:4 VGA/UXGA Distributor / CAT5 Transmitter

This section describes the front and rear panels of the **VP-5T** *1:4 VGA/UXGA Distributor / CAT5 Transmitter* (see section 6.1), and the underside (see section 6.2).

6.1 Your VP-5T 1:4 VGA/UXGA Distributor / CAT5 Transmitter

The **VP-5T** is a high performance distributor for computer graphics signals, accepting one input, providing necessary buffering and isolation, and distributing the signal to its identical 4 outputs, as well as transmitting it over UTP CAT5 cable to its appropriate receiver.

In particular, the **VP-5T**:

- Features front panel EQ. control
- Has switches on the underside for ID Bit control
- Has video bandwidth exceeding 440MHz, ensuring transparency even when operating at the highest resolutions
- Has a transmission range of more than 300 ft. (more than 100 meters) over UTP cabling
- Is mains fed and housed in a half 19" enclosure

1 The VP-5T(HD) (identified by the Hs and Vs switches on its underside) is similar in appearance to the VP-5T. However, the VP-5T(HD) can also receive HD signals (high definition resolutions: 480p, 576p, 720p, 1080i and 1080p)

Figure 4 and Table 4 define the **VP-5T**:

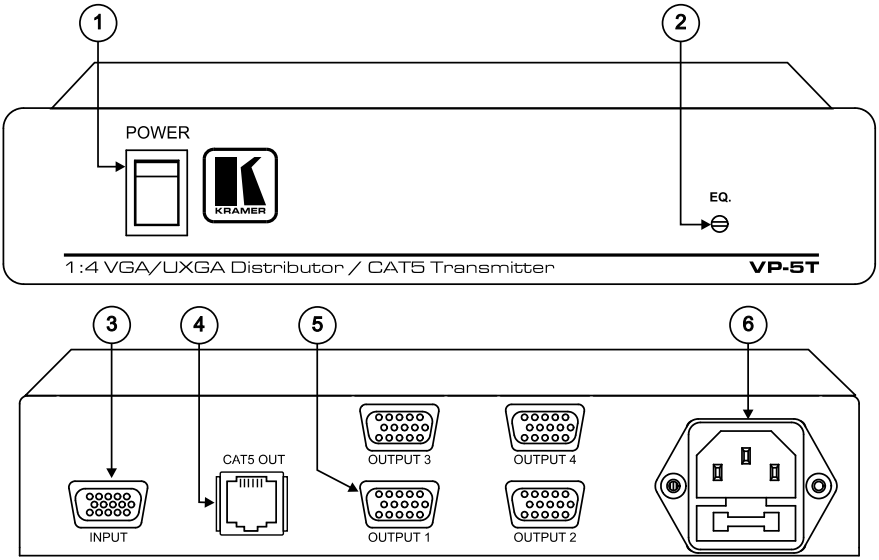


Figure 4: VP-5T 1:4 VGA/UXGA Distributor / CAT5 Transmitter

Table 4: VP-5T 1:4 VGA/UXGA Distributor / CAT5 Transmitter Features

#	Feature	Function
1	*POWER* Switch	Illuminated switch for turning the unit ON or OFF
2	*EQ.* Trimmer	Adjusts[1] the video EQ. (equalization) compensation
3	*INPUT* HD15F Connector	Connect to the VGA/UXGA source
4	*CAT5 OUT* RJ-45 Connector	Connect to[2] the LINE IN RJ-45 connector on the **VP-5R** *CAT5 Receiver / 1:5 VGA/UXGA Distributor*
5	*OUTPUT* HD15F Connector	Connect to the VGA/UXGA acceptor (from 1 to 4)
6	Power Connector with *FUSE*	AC connector enabling power supply to the unit

1 Insert a screwdriver into the hole and carefully rotate it, to trim the level

2 Using a UTP CAT5 cable with RJ-45 connectors at both ends (the PINOUT is defined in Table 8 and Figure 11)

6.2 Your VP-5T/VP5T(HD) (Underside)

Figure 5 and Table 5 define the underside of the **VP-5T/VP-5T(HD)** *1:4 VGA/UXGA Distributor / CAT5 Transmitter*:

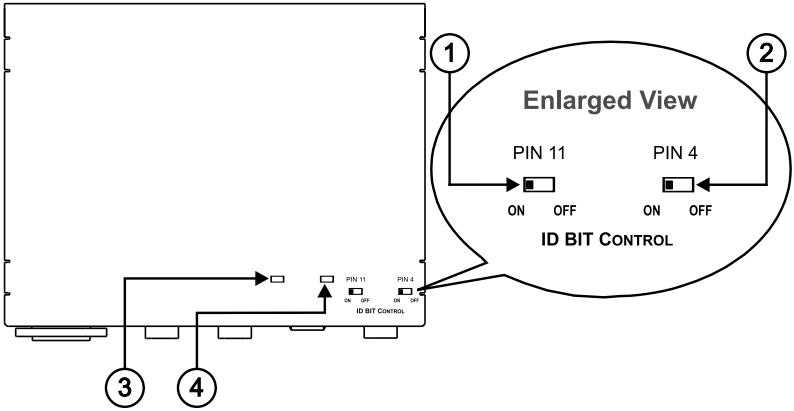


Figure 5: VP-5T 1:4 VGA/UXGA Distributor / CAT5 Transmitter (Underside)

Table 5: VP-5T 1:4 VGA/UXGA Distributor / CAT5 Transmitter (Underside) Features

#	Feature		Function
1	*PIN 11 ID BIT* CONTROL Switch		Slide to the left to set to ON[1]; to the right to set to OFF
2	*PIN 4 ID BIT* CONTROL Switch		Slide to the left to set to ON[1]; to the right to set to OFF
3	HD ONLY	VS Switch	Slide the switch to the left to change the VS polarity to negative polarity[2]; slide the switch to the right to retain the polarity (default)
4	HD ONLY	HS Switch	Slide the switch to the left to change the HS polarity to negative polarity[2]; slide the switch to the right to retain the polarity (default)

1 The default. Enabling the notebook or laptop to output a VGA signal to an external VGA monitor

2 Downgoing syncs

7 Your VP-5R CAT5 Receiver / 1:5 VGA/UXGA Distributor

This section describes the front and rear panels of the **VP-5R** *CAT5 Receiver / 1:5 VGA/UXGA Distributor* (see section 7.1), and the underside (see section 7.2).

7.1 Your VP-5R CAT5 Receiver / 1:5 VGA/UXGA Distributor

The **VP-5R** is a high performance distributor for computer graphics signals, receiving the computer graphics signal via UTP CAT5 cable, and distributing the signal to 5 identical HD15 outputs. In particular, the **VP-5R**:

- Features front panel line input level and EQ. control, as well as output EQ. control
- Is mains fed
- Is housed in a half 19" enclosure

Figure 6 and Table 6 define the **VP-5R**:

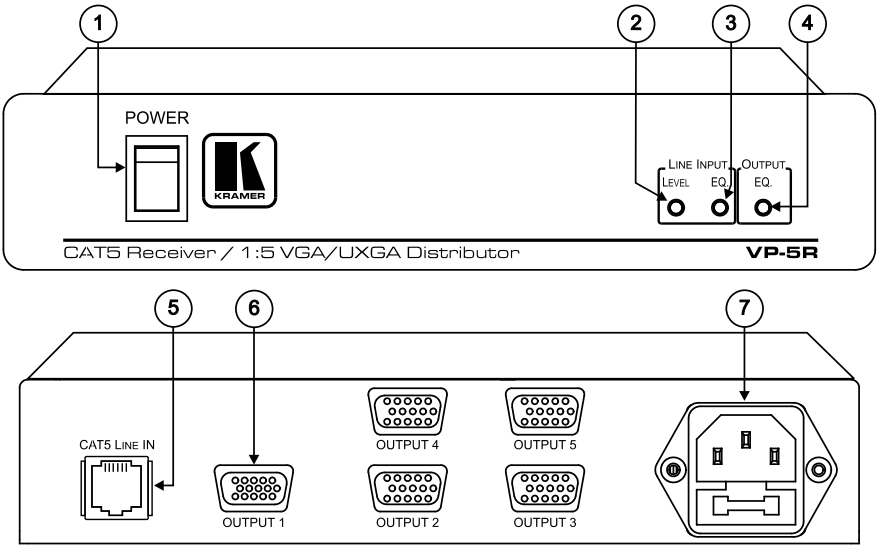


Figure 6: VP-5R CAT5 Receiver / 1:5 VGA/UXGA Distributor

Table 6: VP-5R CAT5 Receiver / 1:5 VGA/UXGA Distributor Features

#	Feature	Function
1	*POWER* Switch	Illuminated switch for turning the unit ON or OFF
2	*LINE INPUT LEVEL* Trimmer	Adjusts[1] the video input level
3	*LINE INPUT EQ.* Trimmer	Adjusts[1] the video input EQ. (equalization) compensation
4	*OUTPUT EQ.* Trimmer	Adjusts[1] the video output EQ. (equalization) compensation
5	*CAT5 LINE IN* RJ-45 Connector	Connect to[2] the LINE OUT RJ-45 connector on the **VP-5T** *1:4 VGA/UXGA Distributor / CAT5 Transmitter*
6	*OUTPUT* HD15F Connector	Connect to the VGA/UXGA acceptor (from 1 to 5)
7	Power Connector with *FUSE*	AC connector enabling power supply to the unit

7.2 Your VP-5R CAT5 Receiver / 1:5 VGA/UXGA Distributor (Underside)

Figure 7 and Table 7 define the underside of the **VP-5R** *CAT5 Receiver / 1:5 VGA/UXGA Distributor*:

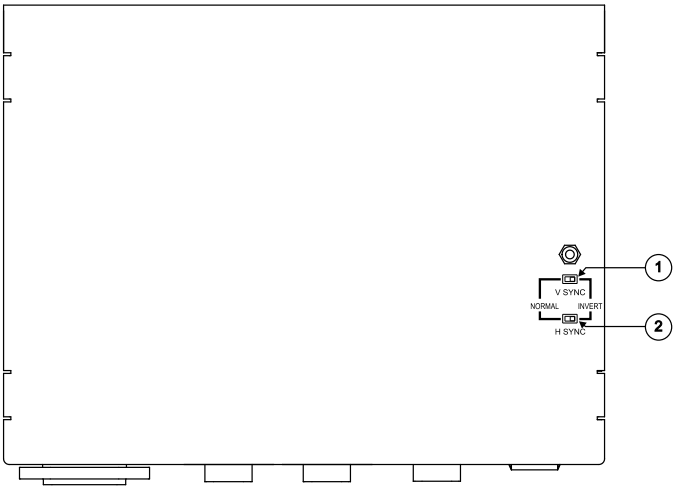


Figure 7: VP-5R CAT5 Receiver / 1:5 VGA/UXGA Distributor (Underside)

Table 7: VP-5R CAT5 Receiver / 1:5 VGA/UXGA Distributor (Underside) Features

#	Feature	Function
1	*V SYNC* Switch	Slide the switch to the right[3] to change the V SYNC polarity; slide the switch to the left to retain the polarity
2	*H SYNC* Switch	Slide the switch to the right[3] to change the H SYNC polarity; slide the switch to the left to retain the polarity

1 Insert a screwdriver into the hole and carefully rotate it, to trim the level

2 Using a UTP CAT5 cable with RJ-45 connectors at both ends (the PINOUT is defined in Table 8 and Figure 11)

3 By default, both switches are set to the left

8 Connecting the VP-200XLT

You can use the **VP-200XLT** and, for example, the **TP-120** to configure an *XGA Line*-to-Twisted Pair Transmitter and Receiver system.

To connect the **VP-200XLT** with the **TP-120**, as the example in Figure 8 illustrates, do the following:

1. On the **VP-200XLT** *XGA Line Amp / CAT5 Transmitter*, connect the:
   - Computer graphics (XGA) source (for example, a computer) to the INPUT HD15F connector
   - XGA OUT HD15F connector to the acceptor (for example, to a projector)
2. On the **TP-120** *XGA Line Receiver*, connect the XGA OUT HD15F connector to the XGA acceptor (for example, a display).
3. Connect the LINE OUT RJ-45 connector on the **VP-200XLT** to the LINE IN RJ-45 connector on the **TP-120**, via UTP cabling (with a range of more than 300ft (more than 100 meters)), see section 10.1.
4. Connect the 12V DC power adapter to the power socket on the **VP-200XLT**, and plug the adapter into the mains electricity socket. Similarly, connect the other 12V DC power adapter to the power socket on the **TP-120**, and plug that adapter into the mains electricity socket.
5. On the **VP-200XLT**, if required, rotate the appropriate control knob to adjust the:
   - Video output signal level
   - Cable compensation equalization level
6. On the **TP-120**, if required:
   - Adjust[1] the video output signal level and/or cable compensation equalization level
   - Set the H SYNC and V SYNC switches[2], on the underside

1 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

2 By default, both switches are set down (for normal V SYNC and H SYNC polarity)

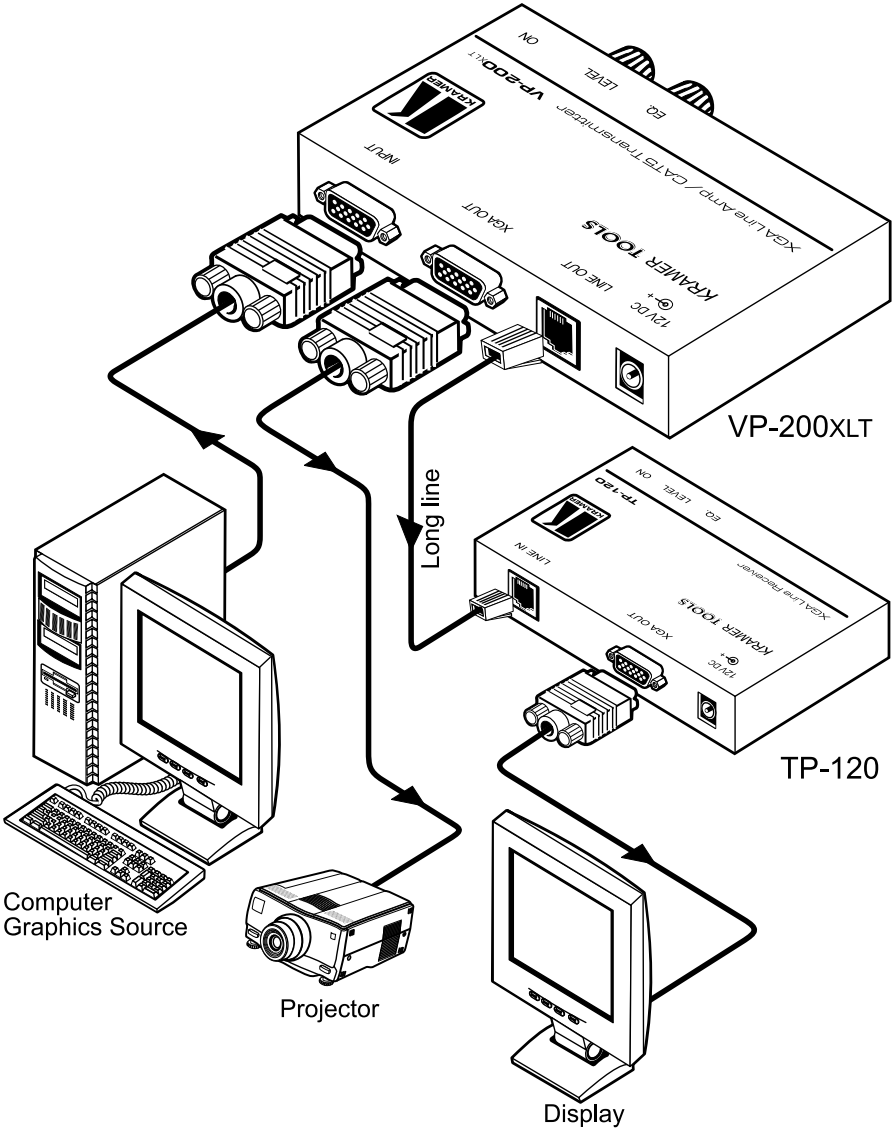


Figure 8: Connecting the VP-200XLT

9 Connecting the VP-300T

You can use the **VP-300T** and, for example, the **TP-120** to configure an *XGA Line*-to-Twisted Pair Transmitter and Receiver system.

To connect the **VP-300T** with the **TP-120**, as the example in Figure 9 illustrates, do the following:

1. On the **VP-300T** *1:2 XGA DA/ CAT5 Transmitter*, connect the:
   - Computer graphics (XGA) source (for example, a computer) to the INPUT HD15F connector
   - OUTPUT 1 and OUTPUT 2 HD15F connectors to up to[1] two acceptors (for example, to a display and to a projector, respectively)
2. On the **TP-120** *XGA Line Receiver*, connect the XGA OUT HD15F connector to the XGA acceptor (for example, a display).
3. Connect the LINE OUT RJ-45 connector on the **VP-300T** to the LINE IN RJ-45 connector on the **TP-120**, via UTP cabling (with a range of more than 300ft (more than 100 meters)), see section 10.1.
4. Connect the 12V DC power adapter to the power socket on the **VP-300T**, and plug the adapter into the mains electricity socket. Similarly, connect the other 12V DC power adapter to the power socket on the **TP-120**, and plug that adapter into the mains electricity socket.
5. On the **VP-300T**, if required:
   - Set the ID Bit switch
6. On the **TP-120**, if required:
   - Adjust[2] the video output signal level and/or cable compensation equalization level
   - Set the H SYNC and V SYNC switches[3], on the underside

1 When both outputs are not required, connect only the output that is required and leave the other output unconnected

2 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

3 By default, both switches are set down (for normal V SYNC and H SYNC polarity)

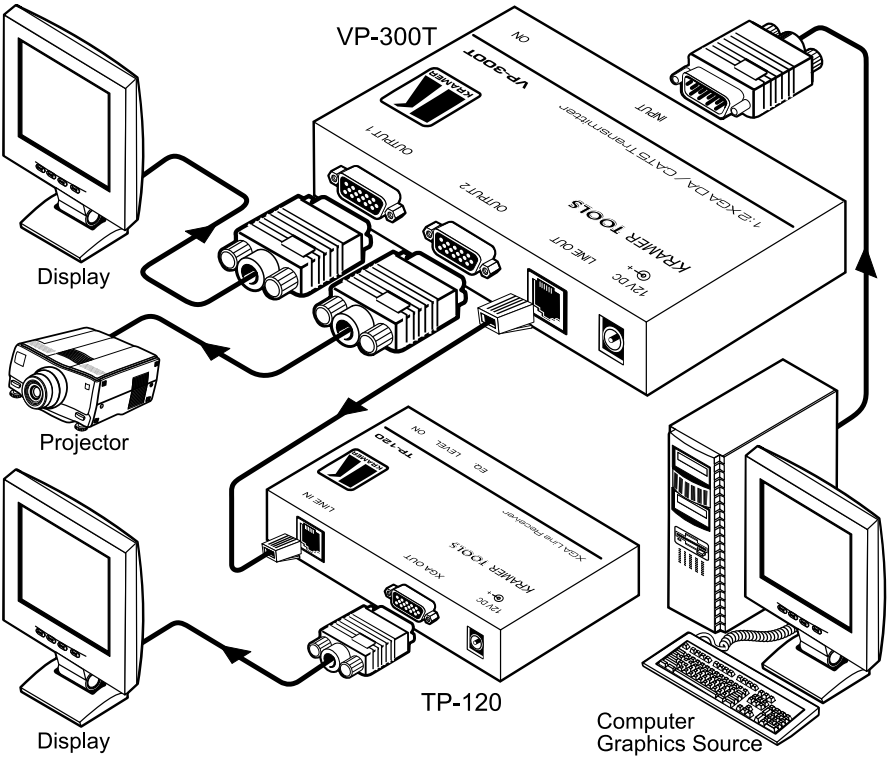


Figure 9: Connecting the VP-300T

10 Connecting the VP-5T and the VP-5R

You can use the **VP-5T** *1:4 VGA/UXGA Distributor / CAT5 Transmitter* and the **VP-5R** *CAT5 Receiver / 1:5 VGA/UXGA Distributor* to configure an *XGA Line*-to-Twisted Pair Transmitter and Receiver system.

To connect the **VP-5T** with the **VP-5R**, as the example in Figure 10 illustrates, do the following:

1. On the **VP-5T**, connect the computer graphics source (for example, a computer) to the INPUT HD15F connector, and connect up to[1] 4 acceptors (for example, local displays) to the OUTPUT HD15F connectors 1 to 4.
2. On the **VP-5R**, connect up to[1] 5 acceptors (for example, displays) to the OUTPUT HD15F connectors 1 to 5.
3. Connect the CAT5 OUT RJ-45 connector on the **VP-5T** to the CAT5 LINE IN RJ-45 connector on the **VP-5R**, via UTP cabling (with a range of more than 300ft (more than 100 meters)), see section 10.1.
4. Connect the power cord[2] (not illustrated in Figure 10) to the **VP-5T**, and connect the other power cord[2] to the **VP-5R**.
5. On the **VP-5T**, if required:
   - Adjust[3] the front panel cable compensation equalization level
   - Set the underside ID BIT Control switches
   - On the **VP-5T**(**HD**) only, set the H SYNC and V SYNC switches[4] on the underside
6. On the **VP-5R**, if required:
   - Adjust[3] the front panel *LINE INPUT* signal level and/or cable compensation equalization level, and/or *OUTPUT* compensation equalization level
   - Set the V SYNC and H SYNC switches[4], on the underside

1 When not all the outputs are required, connect only those that are required and leave the other output(s) unconnected

2 We recommend that you use only the power cord that is supplied with each specific machine

3 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

4 By default, both switches are set down (for negative V SYNC and H SYNC polarity)

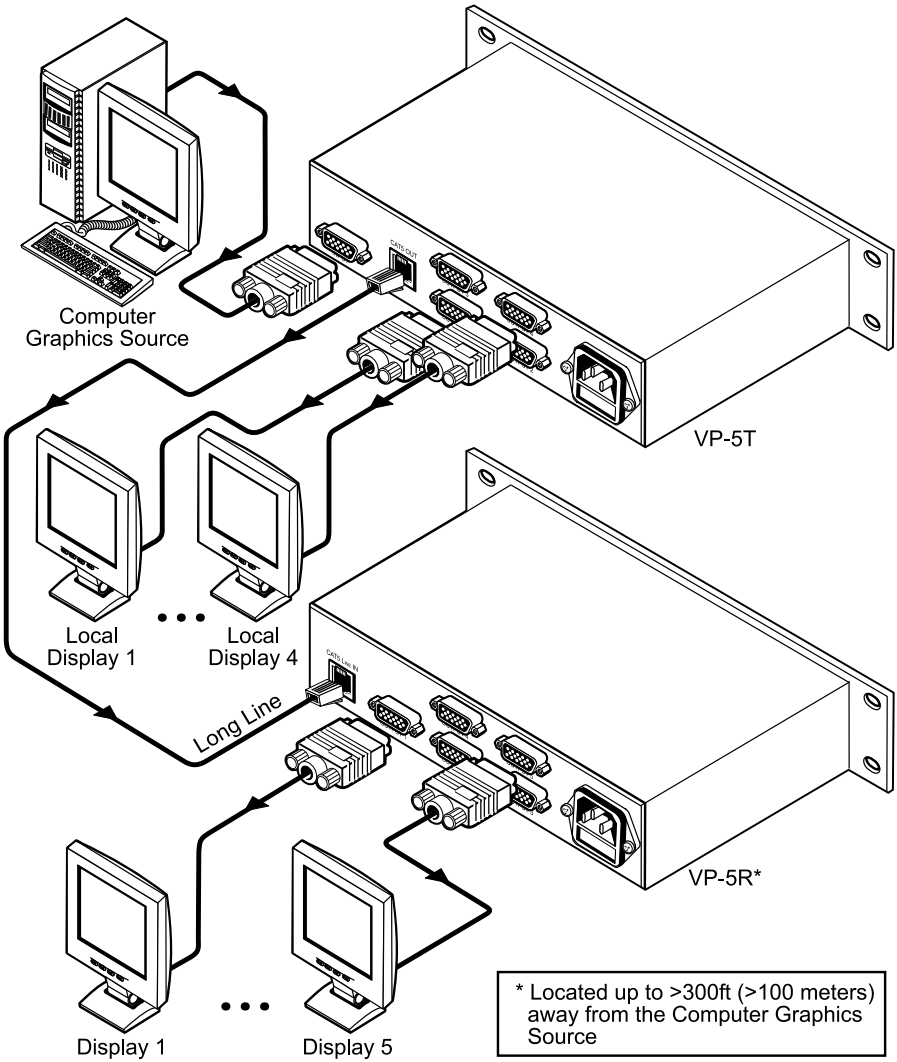


Figure 10: Connecting the VP-5T and the VP-5R

10.1 Wiring the CAT5 LINE IN / LINE OUT RJ-45 Connectors

Table 8 and Figure 11 define the UTP CAT5 PINOUT, using a straight pin to pin cable with RJ-45 connectors:

Figure 11: CAT5 PINOUT

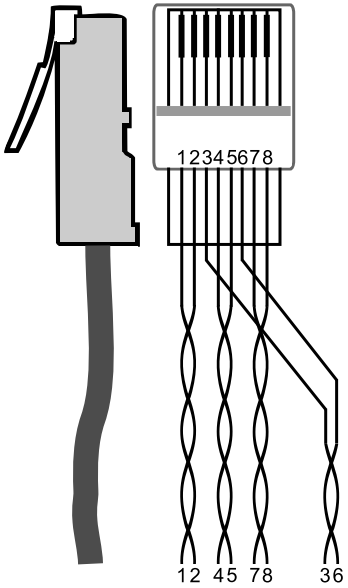


Table 8: CAT5 PINOUT

EIA /TIA 568A	
PIN	**Wire Color**
1	Green / White
2	Green
3	Orange / White
4	Blue
5	Blue / White
6	Orange
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	3 and 6
Pair 3	1 and 2
Pair 4	7 and 8

EIA /TIA 568B	
PIN	**Wire Color**
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	1 and 2
Pair 3	3 and 6
Pair 4	7 and 8

11 Technical Specifications[1]

This section includes the technical specifications of the **VP-200XLT/ VP-200XLT(HD)** (see Table 9), the **VP-300T** (see Table 10), the **VP-5T/VP-5T(HD)** (see Table 11), and the **VP-5R** (see Table 12).

Table 9: Technical Specifications of the VP-200XLT (with 30m CAT5 cable)

INPUTS:	1 XGA on an HD15 connector
OUTPUTS:	1 XGA on an HD15 connector; 1 RJ-45 connector
MAX. OUTPUT LEVEL[2]:	1.9Vpp (XGA), 1.9Vpp (CAT5)
BANDWIDTH (-3dB):	407MHz (XGA), 155MHz (CAT5)
RESOLUTION:	Up to UXGA, up to 1080p[3]
DIFF. GAIN[2]:	0.03% (XGA), 3.5% (CAT5)
DIFF. PHASE[2]:	0.03 Deg (XGA), 0.51 Deg (CAT5)
K-FACTOR[2]:	<0.05% (XGA and CAT5)
S/N RATIO[2]:	74dB (XGA), 71dB (CAT5)
CONTROLS[2]:	LEVEL: –1.5dB to +2.5dB (from VP-200XLT) (XGA); –1dB to +2.5dB (from VP-200XLT); –7.7dB to +9dB (from TP-120) (CAT5) EQ.: 0 to 4.1dB @50MHz (from VP-200XLT) (XGA); 0 to 4dB (from VP-200XLT), 0 to 30.4dB @50MHz (from TP-120) (CAT5)
COUPLING[2]:	DC (XGA), AC (CAT5)
POWER SOURCE:	12 VDC 140mA
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H)
WEIGHT:	0.3 kg. (0.67 lbs.) approx.
ACCESSORIES:	Power supply

Table 10: Technical Specifications of the VP-300T (with 30m CAT5 cable)

INPUTS:	1 XGA on an HD15 connector
OUTPUTS:	2 XGA on HD15 connectors 1 RJ-45 connector
MAX. OUTPUT LEVEL[4]:	1.9Vpp (XGA), 1.3Vpp (CAT5)
BANDWIDTH (-3dB):	439MHz (XGA), 152MHz (CAT5)
DIFF. GAIN[4]:	0.05% (XGA), 3.1% (CAT5)
DIFF. PHASE[4]:	0.05 Deg (XGA), 0.4 Deg (CAT5)
K-FACTOR[4]:	<0.05% (XGA and CAT5)
S/N RATIO[4]:	76dB (XGA), 71dB (CAT5)
CONTROLS[4]:	LEVEL: –8.9dB to 3.9dB (CAT5) EQ.: 0 to 30dB (CAT5)
COUPLING[4]:	DC (XGA), AC (CAT5)
POWER SOURCE:	12 VDC 130mA
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H)
WEIGHT:	0.3 kg. (0.67 lbs.) approx.
ACCESSORIES:	Power supply

1 Specifications are subject to change without notice

2 For the VP-200XLT to TP-120 SETUP

3 The HD resolutions apply to the HD version of the machine

4 For the VP-300T to TP-120 SETUP

Table 11: Technical Specifications of the VP-5T/VP-5T(HD) (with 60m CAT5 cable)

INPUTS:	1 XGA on an HD15 connector
OUTPUTS:	4 XGA on HD15 connectors 1 RJ-45 connector
MAX. OUTPUT LEVEL[1]:	1.7Vpp (XGA), 1.7Vpp (CAT5)
BANDWIDTH (-3dB):	445MHz (XGA), 154MHz (CAT5)
RESOLUTION:	Up to UXGA, up to 1080p[2]
DIFF. GAIN[1]:	0.8% (XGA), 3.2% (CAT5)
DIFF. PHASE[1]:	0.08 Deg (XGA), 0.06 Deg (CAT5)
K-FACTOR[1]:	0.1% (XGA), <0.05% (CAT5)
S/N RATIO[1]:	76dB (XGA), 73dB (CAT5)
CONTROLS[1]:	LEVEL: –7.4dB to 3.5dB (CAT5) EQ.: 0 to 37.8dB @50MHz (CAT5)
COUPLING[1]:	DC (XGA), AC (CAT5)
POWER SOURCE:	230 VAC, 50/60 Hz. (115VAC, U.S.A.) 13VA
DIMENSIONS:	22cm x 18cm x 4.5cm (8.7" x 7" x 1.7") W, D, H (half 19", 1U)
WEIGHT:	1.2kg (2.6 lbs) approx.
ACCESSORIES:	Power cord

Table 12: Technical Specifications of the VP-5R (with 30m CAT5 cable)

INPUTS:	1 RJ-45 connector
OUTPUTS:	5 XGA on HD15 connectors
MAX. OUTPUT LEVEL[3]:	1.4Vpp
BANDWIDTH (-3dB):	150MHz
DIFF. GAIN[3]:	3.4%
DIFF. PHASE[3]:	0.05 Deg
K-FACTOR[3]:	<0.05%
S/N RATIO[3]:	74dB
CONTROLS[3]:	LEVEL: –8.2dB to 4.3dB LINE EQ.: 0 to 30dB; OUT EQ.: 0 to 8.6dB
COUPLING[3]:	AC
POWER SOURCE:	230 VAC, 50/60 Hz. (115VAC, U.S.A.) 9.2VA
DIMENSIONS:	22cm x 18cm x 4.5cm (8.7" x 7" x 1.7") W, D, H (half 19", 1U)
WEIGHT:	1.2kg (2.6 lbs) approx.
ACCESSORIES:	Power cord

1 For the VP-5T to TP-120 SETUP

2 The HD resolutions apply to the HD version of the machine

3 For the VP-5R to WP-110 SETUP

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   - ii) Product modification, or failure to follow instructions supplied with the product
   - iii) Repair or attempted repair by anyone not authorized by Kramer
   - iv) Any shipment of the product (claims must be presented to the carrier)
   - v) Removal or installation of the product
   - vi) Any other cause, which does not relate to a product defect
   - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.
NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.
This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B – Unintentional radiators"

CAUTION!

- ⌦ Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- ⌦ Use the supplied DC power supply to feed power to the machine.
- ⌦ Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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P/N: 2900-000067 REV 3